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| **Module** | **Lessons** | **Vocab & Tools** | **Standards** |
| Rational Numbers (Module 2)  Rational Numbers (Module 2) | 1: Opposite Quantities Combine to Make Zero  2: Using the Number Line to Model the Addition of Integers  3: Understanding Addition of Integers  4: Efficiently Adding Integers and Other Rational Numbers  5: Understanding Subtraction of Integers and Other Rational Numbers  6: The Distance Between Two Rational Numbers  7: Addition and Subtraction of Rational Numbers  8: Applying the Properties of Operations to Add and Subtract Rational Numbers  9: Applying the Properties of Operations to Add and Subtract Rational Numbers  10: Understanding Multiplication of Integers  11: Develop Rules for Multiplying Signed Numbers  12: Division of Integers  13: Converting Between Fractions and Decimals Using Equivalent Fractions  14: Converting Rational Numbers to Decimals Using Long Division  15: Multiplication and Division of Rational Numbers  16: Applying the Properties of Operations to Multiply and Divide Rational Numbers  **Assessment** | New or Recently Introduced Terms  **Additive Identity** (The additive identity is .)  **Additive Inverse** (The *additive inverse* of a real number is the opposite of that number on the real number line. For example, the opposite of is . A number and its additive inverse have a sum of .)  **Break-Even Point** (The *break-even point* is the point at which there is neither a profit nor loss.)  **Distance Formula** (If and are rational numbers on a number line, then the distance between and is .)  **Loss** (A decrease in amount, as when the money earned is less than the money spent.)  **Multiplicative Identity** (The *multiplicative identity* is .)  **Profit** (A gain, as in the positive amount represented by the difference between the money earned and spent)  **Repeating Decimal** (The decimal form of a rational number, for example, )  **Terminating Decimal** (A decimal is called terminating if its repeating digit is .)  Familiar Terms and Symbols[[1]](#footnote-1)  Absolute Value  Associative Property (of Multiplication and Addition)  Commutative Property (of Multiplication and Addition)  Credit  Debit  Deposit  Distributive Property (of Multiplication Over Addition)  Expression  Equation  Integer  Inverse  Multiplicative Inverse  Opposites  Overdraft  Positives  Negatives  Rational Numbers  Withdraw  **Suggested Tools and Representations**  Equations  Expressions  Integer Game (See explanation on page 11)  Number Line  Tape Diagram | 7.NS.A.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.   1. Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged*. 2. Understand *p* + *q* as the number located a distance |*q*| from *p*, in the positive or negative direction depending on whether *q* is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real‐world contexts. 3. Understand subtraction of rational numbers as adding the additive inverse, *p* – *q* =  *p* + (–*q*). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real‐world contexts. 4. Apply properties of operations as strategies to add and subtract rational numbers.   7.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.   1. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (–1)( –1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real‐world contexts. 2. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non‐zero divisor) is a rational number. If *p* and *q* are integers, then –(*p*/*q*) = (–*p*)/*q* = *p*/(–*q*). Interpret quotients of rational numbers by describing real‐world contexts. 3. Apply properties of operations as strategies to multiply and divide rational numbers. 4. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.   7.NS.A.3 Solve real‐world and mathematical problems involving the four operations with rational numbers.[[2]](#footnote-2) |

1. These are terms and symbols students have seen previously. [↑](#footnote-ref-1)
2. Computations with rational numbers extend the rules for manipulating fractions to complex fractions. [↑](#footnote-ref-2)